

I claim:

1. A diffusing film comprising a transparent resin in which scatterers are dispersed, wherein the difference
5 between the refractive index of the transparent resin and that of the scatterers is in the range of 0.04 to 1.5, and wherein scatterers are flat particles having particle sizes in the range of 0.1 to 50 μm .

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2. The diffusing film of claim 1, wherein the scatterers are tabular particles.

3. The diffusing film of claim 2, wherein the ratio
15 of the average size of scatterers in a section parallel to the film plane to that in a section perpendicular to the film plane is 2 or more.

4. The diffusing film of claim 1, wherein the scat-
20 terers are columnar or rod-like particles.

5. The diffusing film of claim 4, wherein the ratio
of the average size of scatterers in the section parallel to the film plane to that in the section perpendicular to
25 the film plane is 0.5 or less.

6. The diffusing film of claim 1, wherein at least
one surface of the diffusing film has a surface roughness
of 0.05 to 0.18 μm .

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7. The diffusing film of claim 1, wherein the trans-
parent resin further contains a matting agent in the form
of fine particles, and the difference between the refrac-
tive index of the transparent resin and that of the matting
35 agent is less than 0.04.

8. The diffusing film of claim 1, wherein the transparent resin furthermore contains superfine particles whose particle sizes are less than $0.1\text{ }\mu\text{m}$.

5 9. The diffusing film of claim 1, wherein a scattering layer comprising the transparent resin and the scatterers dispersed therein is provided on a transparent substrate.

10 10. The diffusing film of claim 9, wherein the scattering layer has a thickness of 2.0 to $6.0\text{ }\mu\text{m}$.

15 11. The diffusing film of claim 9, wherein a low-refractive index layer is further provided on the scattering layer.

20 12. The diffusing film of claim 11, wherein an incident ray coming into the low-refractive index layer at the incident angle of 5° is reflected in an average mirror reflectance of 2.5% or less in the wavelength region of 450 to 650 nm .

25 13. A process for preparation of a diffusing film comprising the steps of: dissolving or dispersing a transparent resin and scatterers whose refractive index differs from that of the transparent resin by 0.04 to 1.5 , in a mixture of a solvent having a function of dissolving a transparent substrate and another solvent having a function of not dissolving the substrate, to prepare a coating solution; applying the solution onto the transparent substrate; and drying the solution to form a scattering layer containing flat scatters which have particle size of 0.1 to $50\text{ }\mu\text{m}$.

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14. The process of claim 13, wherein the scattering layer has a thickness of 2.0 to 6.0 μm , and the transparent resin soaks into a depth of 0.01 to 1.0 μm in the substrate.

5 15. The process of claim 13, wherein the substrate is made of cellulose acetate, and the solvent dissolving the substrate contains a ketone.

10 16. A polarizing plate comprising a pair of protective films and a polarizing membrane provided between them, wherein one of the protective films is a diffusing film comprising a transparent resin in which scatterers are dispersed, wherein the difference between the refractive index of the transparent resin and that of the scatterers is in
15 the range of 0.04 to 1.5, and wherein scatterers are flat particles having particle sizes in the range of 0.1 to 50 μm .

20 17. The polarizing plate of claim 16, wherein an optically anisotropic layer comprising a liquid crystal compound is provided on the other protective film.

25 18. The polarizing plate of claim 17, wherein the liquid crystal compound is a discotic compound.

19. A liquid crystal display of transmission type comprising a pair of polarizing plates and a liquid crystal cell provided between them, wherein the polarizing plate comprises a pair of protective films and a polarizing membrane provided between them, and the protective film on the screen side is a diffusing film comprising a transparent resin in which scatterers are dispersed, wherein the difference between the refractive index of the transparent resin and that of the scatterers is in the range of 0.04 to 1.5, and wherein scatterers are flat particles having particle sizes in the range of 0.1 to 50 μm .

20. A liquid crystal display of reflection type comprising a reflection board, a liquid crystal cell and a polarizing plate in this order, wherein the polarizing plate comprises a pair of protective films and a polarizing membrane provided between them, and the protective film on the screen side is a diffusing film comprising a transparent resin in which scatterers are dispersed, wherein the difference between the refractive index of the transparent resin and that of the scatterers is in the range of 0.04 to 1.5, and wherein scatterers are flat particles having particle sizes in the range of 0.1 to 50 μm .